



**RADM Richard Brooks**

**Commander, Naval Safety Center**



# ***Crew Safety during Hi-tempo Operations***

***Video Clip: The Missile Deck***





# Secretary Rumsfeld's Challenge



THE SECRETARY OF DEFENSE  
1000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-1000

May 19, 2003

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS  
CHAIRMAN OF THE JOINT CHIEFS OF STAFF  
UNDER SECRETARIES OF DEFENSE  
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING  
ASSISTANT SECRETARIES OF DEFENSE  
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE  
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE  
DIRECTOR, OPERATIONAL TEST AND EVALUATION  
ASSISTANTS TO THE SECRETARY OF DEFENSE  
DIRECTOR, ADMINISTRATION AND MANAGEMENT  
DIRECTOR, FORCE TRANSFORMATION  
DIRECTOR, NET ASSESSMENT  
DIRECTOR, PROGRAM ANALYSIS AND EVALUATION  
DIRECTORS OF THE DEFENSE AGENCIES  
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Reducing Preventable Accidents

World-class organizations do not tolerate preventable accidents. Our accident rates have increased recently, and we need to turn this situation around. I challenge all of you to reduce the number of mishaps and accident rates by at least 50% in the next two years. ~~These goals are achievable, and will directly increase our operational readiness. We owe no less to the men and women who defend our Nation.~~

I have asked the Under Secretary of Defense for Personnel and Readiness to lead a department-wide effort to focus our accident reduction effort. I intend to be updated on our progress routinely. The USD(P&R) will provide detailed instructions in separate correspondence.



U06916-03

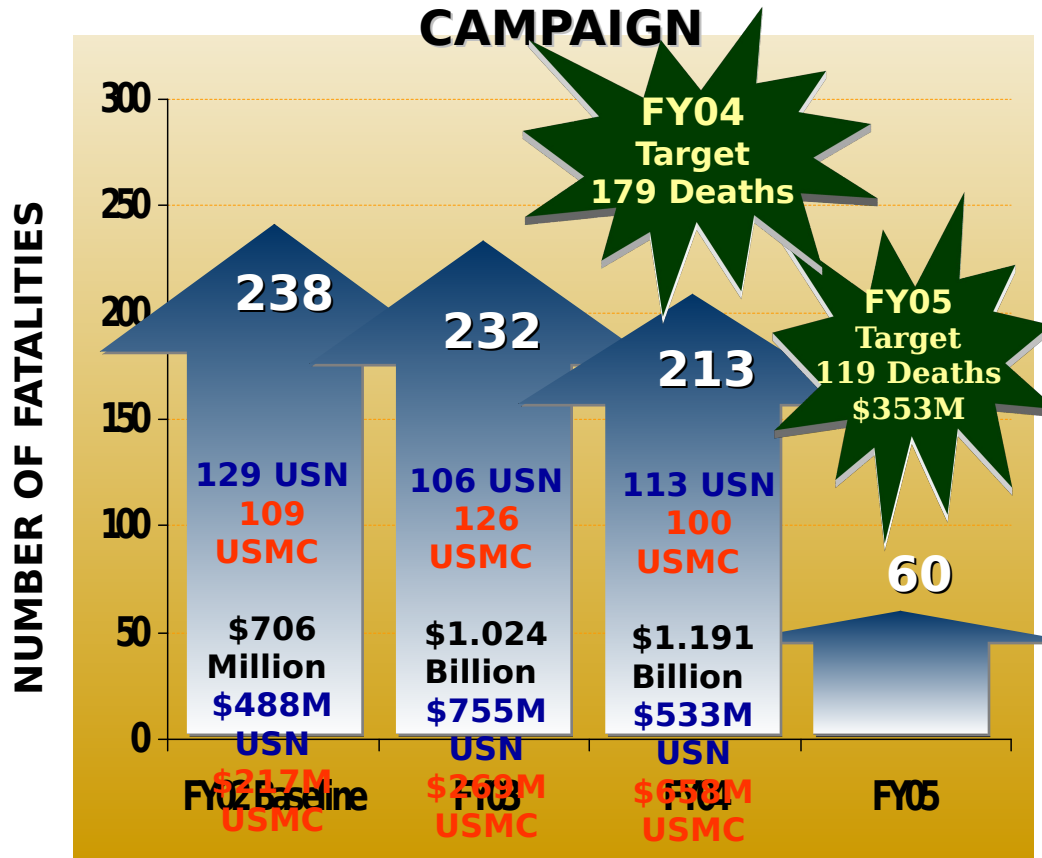
***“World-class organizations do not tolerate preventable accidents. Our accident rates have increased recently, and we need to turn this situation around. I challenge all of you to reduce the number of mishaps and accident rates by at least 50% in the next two years.”***

Memorandum from Secretary of Defense  
19 May 2003



# Where We Are Today - “Big Navy”

## FATALITIES & RESOURCES LOST DURING 50% MISHAP REDUCTION CAMPAIGN



We have experienced 60 deaths in FY05  
(35 USN & 25 USMC)

Our FY05 50% mishap reduction

### PMV Fatalities:

24 Sailors and 14 Marines

### Resources lost:

\$172M to date in FY05

**OUR ENDSTATE GOAL IS**  
**ZERO!**





# ***Magnitude of Accidents***

***In FY04, Navy and Marine Corps Mishaps Resulted In:***

## **NAVY**

- **1 Navy death every 78 hours (3 days)**
- **1 POV death every 120 hours (5 days)**
- **1 Aviation death every 73 days**
- **1 Active duty military injury every 6 hours**
- **1.8 Military members hospitalized every day**
- **11.33 Civilian man-years lost**
- **1 Aircraft destroyed every 41 days**
- **\$1.33 Million a day in aviation losses**

## **MARINE CORPS**

- **1 Marine death every 88 hours (4 days)**
- **1 POV death every 191 hours (8 days)**
- **1 Aviation death every 26 days**
- **1 Active duty military injury every 25 hours**
- **1.9 Military members hospitalized every day**
- **2.53 Civilian man-years lost**
- **1 Aircraft destroyed every 19 days**
- **\$1.74 Million a day in aviation losses**



# ***Are you aware of how your Sailors are performing assigned tasks?***

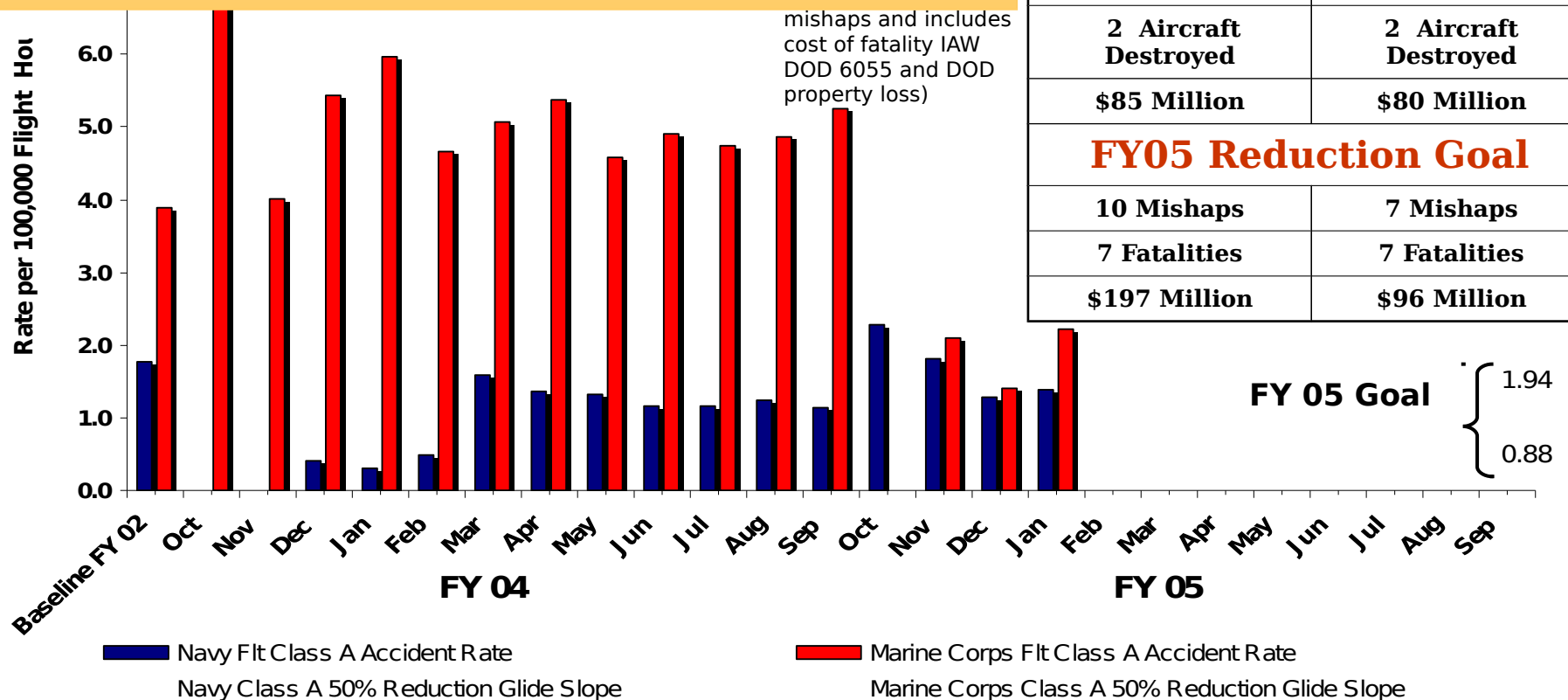
***Video Clip: Construction Site Mishap***



# Status Check

## Leading Causal Factors

- **Human Error (89%)**
  - Aircrew (breakdown in Crew Resource Management, poor decision making, failure to properly perform emergency procedures)
  - Supervisory (failure to provide adequate guidance and training)
- **Material/Systems Malfunction (11%)**
  - Material/component catastrophic failure (no human error involved)



## FY04 Losses

### USN

12 Mishaps

5 Fatalities

9 Aircraft Destroyed

\$468 Million

### USMC

18 Mishaps

14 Fatalities

19 Aircraft Destroyed

\$818 Million

## FY05 Losses

4 Mishaps

0 Fatalities

2 Aircraft Destroyed

\$85 Million

2 Mishaps

0 Fatalities

2 Aircraft Destroyed

\$80 Million

## FY05 Reduction Goal

10 Mishaps

7 Fatalities

\$197 Million

7 Mishaps

7 Fatalities

\$96 Million

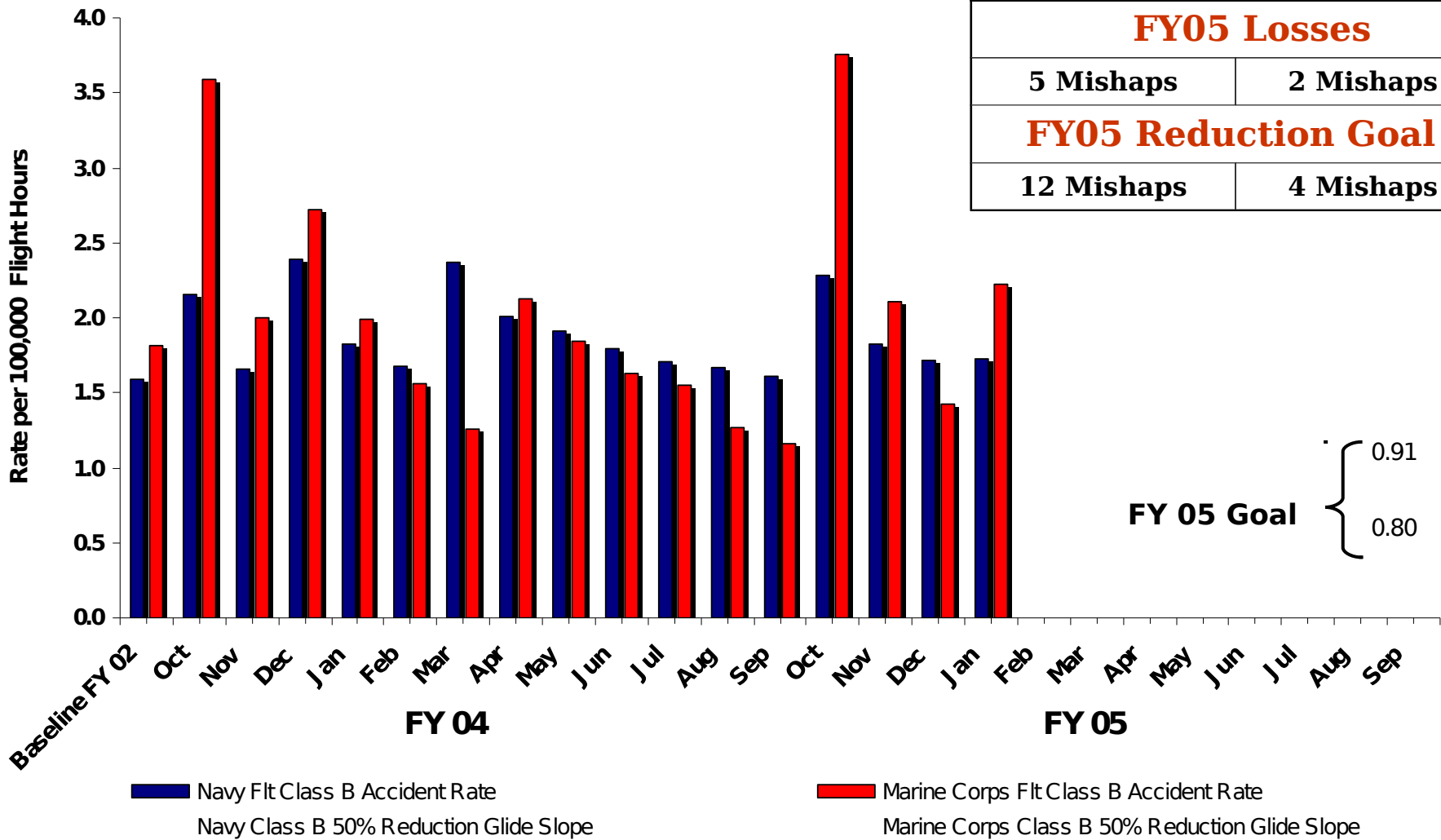




# Status Check

## (Class-B Flight Mishaps)

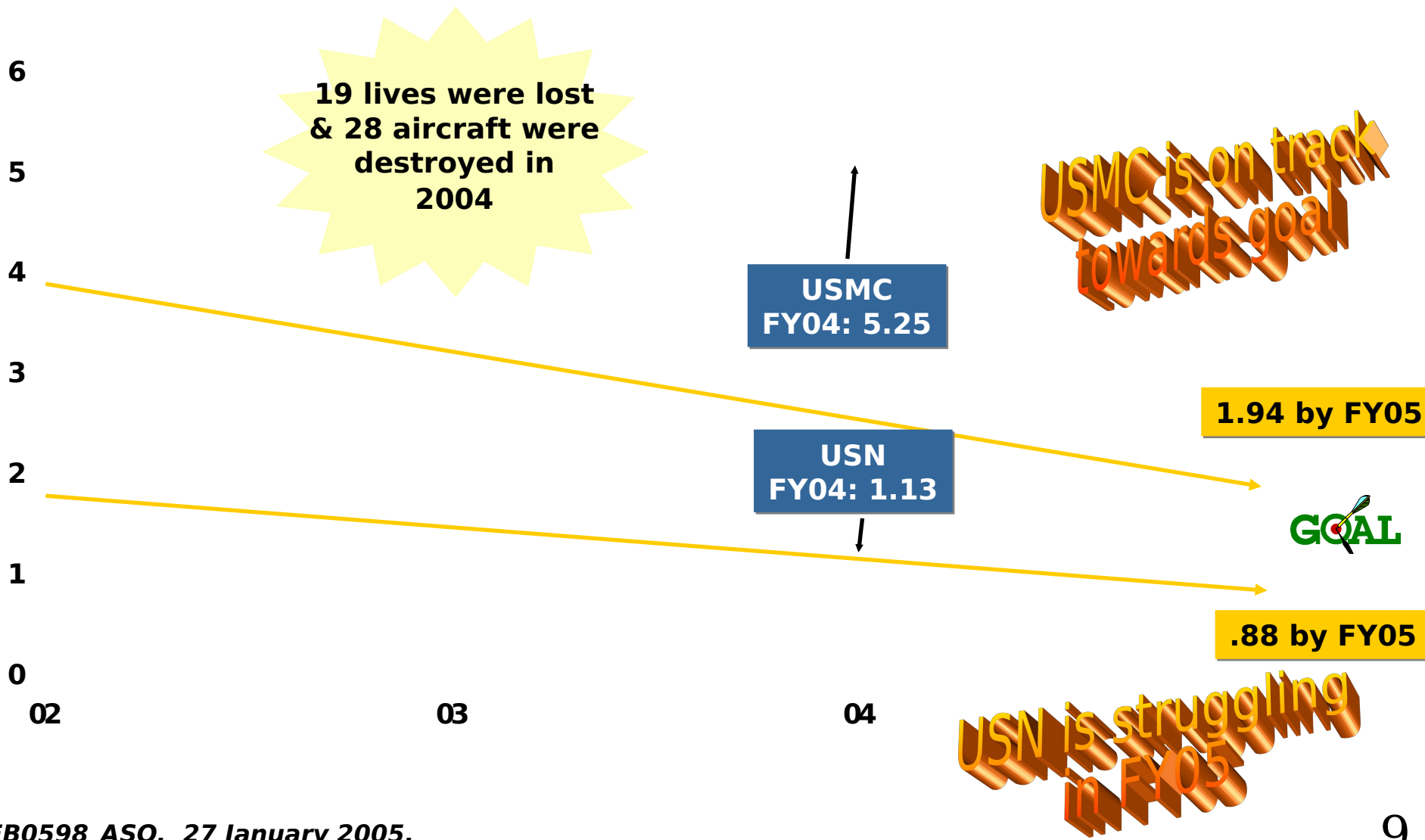
FY04 Losses	
USN	USMC
27 Mishaps	6 Mishaps
FY05 Losses	
5 Mishaps	2 Mishaps
FY05 Reduction Goal	
12 Mishaps	4 Mishaps





# Naval Aviation Mishap Trend

USN/USMC, FY02-04





# ***FY04 Class "A" Causal Factors for Aviation Mishaps***

- Aircrew >90%
  - Unsafe acts:  
USN - 80%    USMC - 65%
  - Preconditions for Unsafe Acts:  
USN - 40%    USMC - 65%
- Supervisory    45%
- Facilities        12%
- Maintenance 12%
- Material         33%





**VS-35**

**10 August 2004**

**CFIT on Kita Iwo**

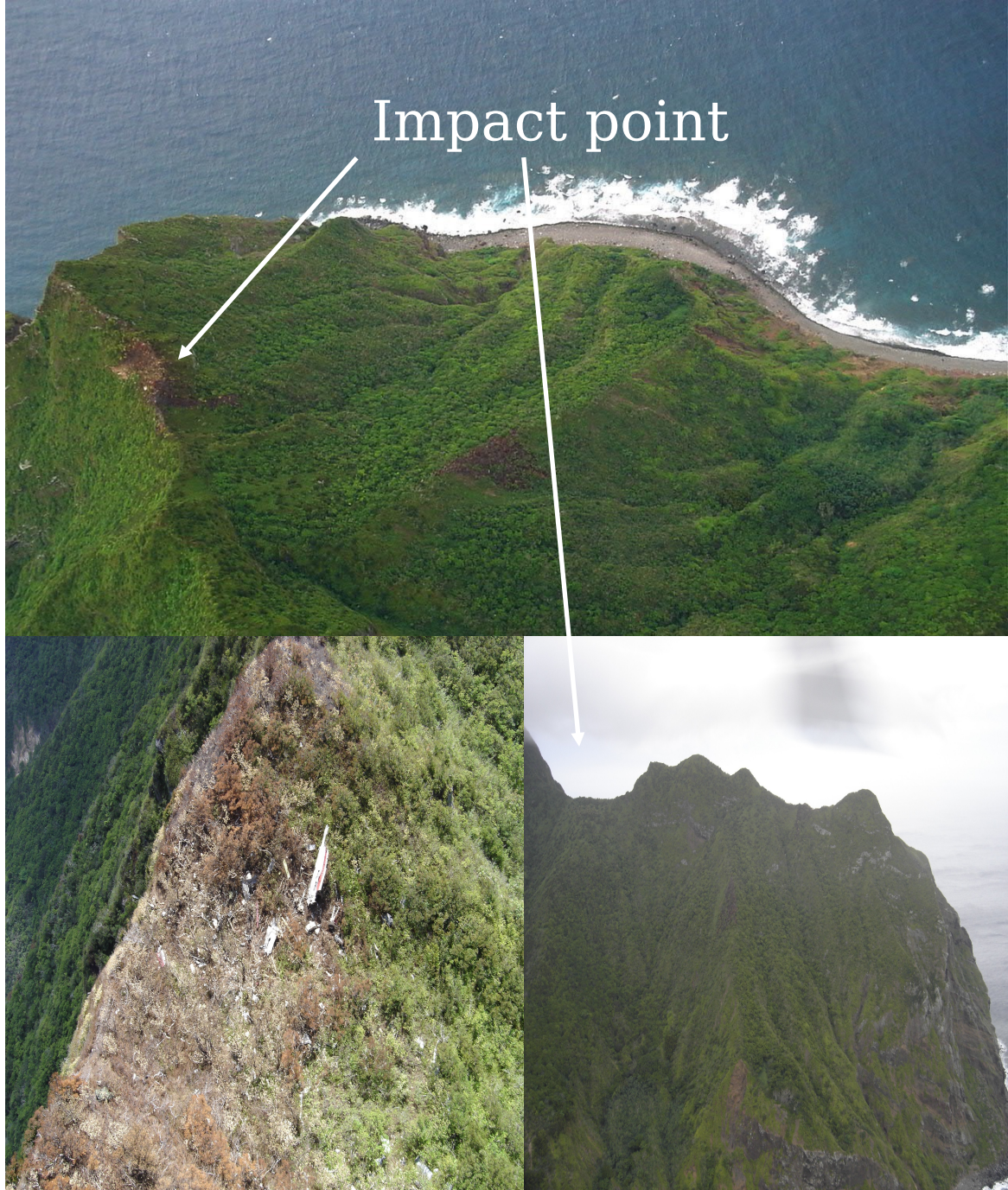
**Jima**

**AIRCRAFT IMPACTED TERRAIN ON IWO JIMA AFTER MISIDENTIFYING ISLAND AS A SURFACE CONTACT. ALL AIRCREW KILLED**

**CAUSAL FACTORS:**

- MC ATTEMPTED OVERFLIGHT OF AN UNIDENTIFIED RADAR CONTACT
- MC FAILED TO PROPERLY PREPARE FOR THE FLIGHT BRIEF IN THE LOCAL OPAREA

**ADDITIONALLY CITED: POOR SITUATIONAL AWARENESS, INADEQUATE GUIDANCE FROM MSCO AND MCVWCO, INADEQUATE TURNOVER BETWEEN CREWS, INADEQUATE**







**VFA-203**

**29 March 2004**

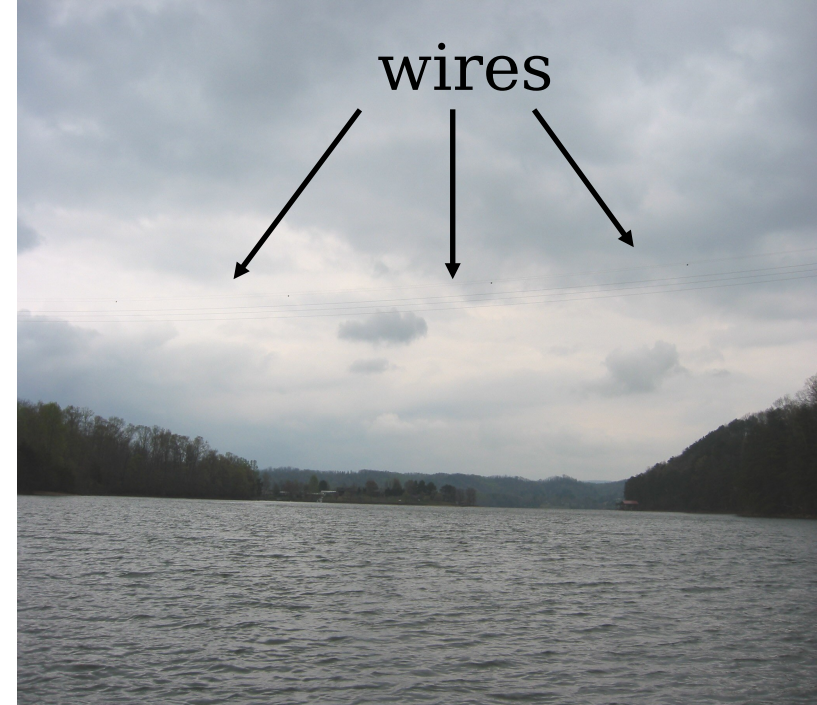
**Flight Mishap (struck wires)**

**AIRCRAFT WAS PART OF A LONG WEEKEND CROSS-COUNTRY THREE PLANE FLIGHT.**

**ON RETURN TO HOME PLATE AS A 2-PLANE, THE MISHAP AIRCRAFT IMPACTED WIRES WHILE ON AN UNSCHEDULED LOW LEVEL, PILOT EJECTED, AIRCRAFT WAS DESTROYED.**

**Causal Factors:**

- Complacency and over confidence resulted in poor flight discipline.
- MP willfully violated route structure.
- MP failed to maneuver within the vertical limits of the route structure.
- MP continued low level flight with doubts to actual altitude.
- MP improperly set the RADALT.





# ***VF-31***

## ***29 March 2004***

### ***Flight mishap***

#### ***(fuel starvation)***

**AIRCRAFT CRASHED AT SEA  
FOLLOWING DUAL ENGINE  
FLAMEOUT**

**CAUSAL FACTORS:**

- MC FAILED TO FOLLOW NATOPS PROCEDURES FOR FUEL IMBALANCE
- MC UTILIZED NON-STANDARD CORRECTIVE PROCEDURES FOR F-14D FUEL PROBLEMS
- MATERIAL FAILURE OF FUEL FEED COMPONENTS

**ALSO CITED: IMPROPER NATOPS  
CHANGES MADE TO MANUALS,  
IMPROPER ASSISTANCE GIVEN FROM  
WINGMAN**







# ***Best Fleet Practices - Aviation***

## **AVIATION**

- 1. Daily OPS brief prior to commencing flight operations each morning.**
- 2. Safety Petty Officer of the Day program (SPOD).**
- 3. Human Factors Council (HFC), to include the squadron's enlisted personnel.**
- 4. Improved mishap prevention practices for 'small boy' flight decks.**
- 5. Culture Workshops (only 5% of squadrons that completed a CW have had mishaps in the following year).**



# FY04 Class A Flight Mishaps

USN (black) - USMC (red)

- **14 Sep 04: F/A-18C, VMFA-212 (Tyndall) Aircraft crashed while holding prior to approach for landing.**
- **13 Sep 04: CH-53E, HMH-361 (Overseas) Tail-rotor struck ground during night CAL.**
- **27 Aug 04: F/A-18C, VFA-151 (NAS North Island) Aircraft departed runway during landing.**
- **13 Aug 04: CH-53D, HMM-265 (Futema) Aircraft crashed near MCAS during landing phase.**
- **11 Aug 04: CH-53E, HMM-166 (Iraq) Aircraft crashed during night combat logistics run.**
- **10 Aug 04: MH-53E, HC-4 (Sigonella) Aircraft became airborne during stop on taxiway in wash area and struck ground.**
- **10 Aug 04: S-3B, VS-35 (Japan) Aircraft crashed into terrain on WESTPAC island.**
- **21 Jul 04: F/A-18A, VMFA-134 (Oregon) Midair collision during unit level training.**
- **12 Jul 04: T-45C, VT-7 (Meridian NAS) Student pilot on SOLO departed runway on landing and ejected.**
- **28 Jun 04: F/A-18C, VMFA-122 (Beaufort MCAS) Aircraft departed runway on landing and overturned.**
- **27 Jun 04: F/A-18A, VMFA-115 (Mid Atlantic) Aircraft lost at sea during night CV operations.**
- **28 May 04: F/A-18C, VFA-82 (Mid Atlantic) During PMCF, FLIR pod separated from aircraft and fell into sea.**
- **26 Apr 04: CH-46E, HMM-266 (Afghanistan) Brownout to hard landing, rotor blades struck terrain and situated upright.**
- **21 Apr 04: F/A-18A, VMFA-112 (SOCAL logistics) Audio transmissions ceased during flight and a/c failed to return to base.**
- **30 Mar 04: AH-1W, COMMARFORPAC - Two AH-1W aircraft collided while air taxiing off active runway to the FARP.**
- **29 Mar 04: F/A-18A, VFA-203 (Tennessee) Pilot ejected during low level flight.**
- **29 Mar 04: F-14D, VF-31 (SOCAL Ops Area) Aircraft diverted to NAS with fuel transfer problems.**
- **26 Mar 04: F/A-18C, VFA-15 (Raleigh Durham Intl) Aircraft crashed on take-off roll.**
- **24 Mar 04: F/A-18C, VFA-82 (Mid Atlantic) Aircraft struck water.**
- **10 Mar 04: F/A-18C, VFA-94 (Lemoore) Aircraft departed runway on landing rollout and overturned.**
- **04 Mar 04: SH-60B, HSL-40 (NAS Mayport) Loss of tail-rotor authority on landing resulted in rolling of aircraft.**
- **24 Feb 04: T-45C, VT-9 (NAS Meridian) Crash on runway during landing roll-out.**
- **23 Jan 04: AH-1W, HMLA-367 (Yuma) Helo crashed while conducting day urban CAS training mission.**
- **22 Jan 04: UH-1N, HMM-166 (Camp Pendleton) Aircraft struck ground during night ops training mission.**
- **17 Dec 03: F/A-18C, VFA-94 (Chino Lake) Aircraft departed runway on landing**



# Human Error

USN/USMC, FY98-03

## No. of Class-A Mishaps

**USN Aviation** = 120 of 133 → HE 90%

**USMC Aviation** = 62 of 71 → HE 87%

**Navy Afloat** = 48 of 51 → HE 94%

*Human Error*

Non-  
HE  
10%

Non-  
HE  
13%

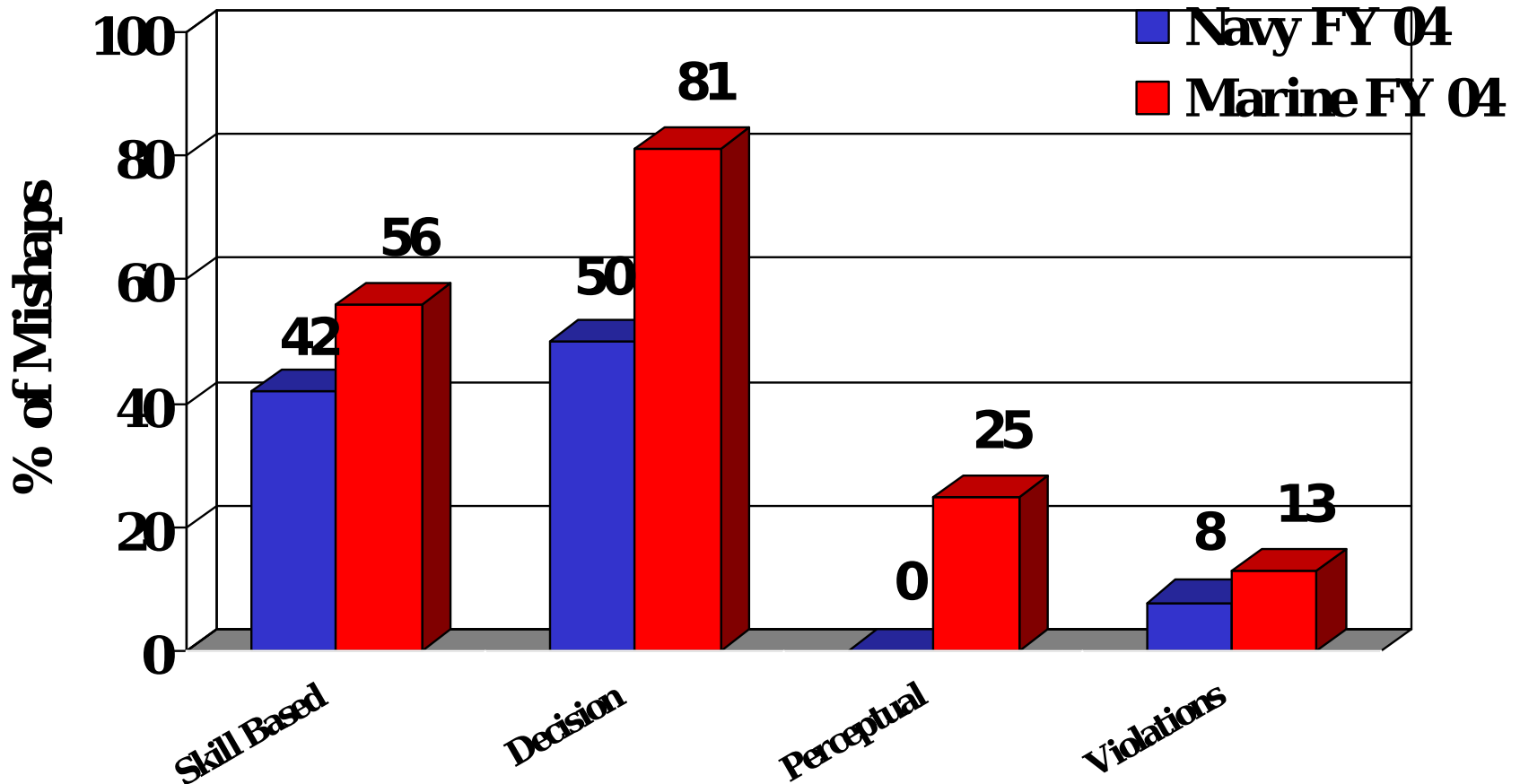
Non-  
HE  
6%





# ***Human Factor Errors (FY04)***

## ***Unsafe Acts - Aircrew***

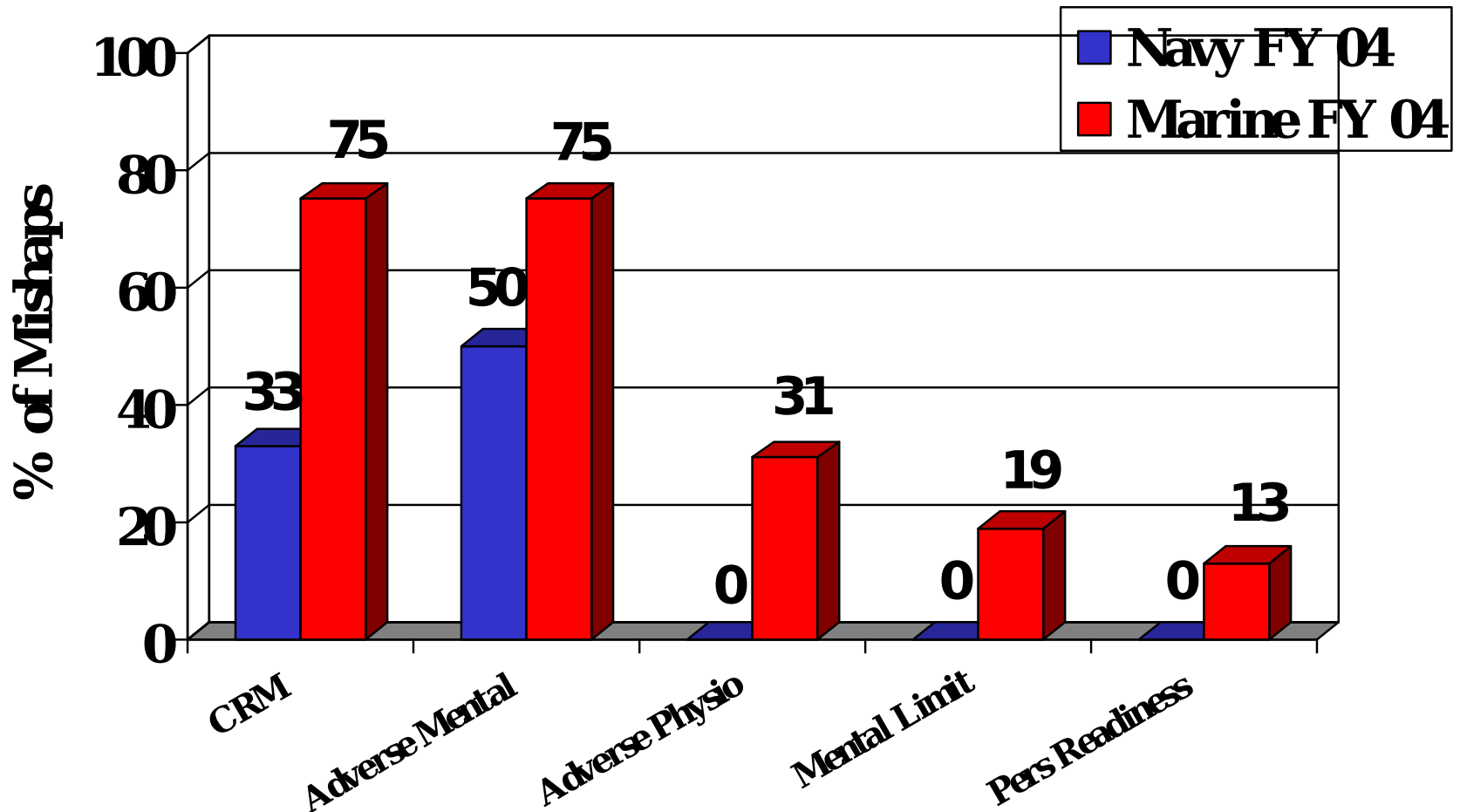


**Human Factor Errors (Unsafe Acts - Aircrew)**



# ***Human Factor Errors (FY04)***

## ***Preconditions - Aircrew***

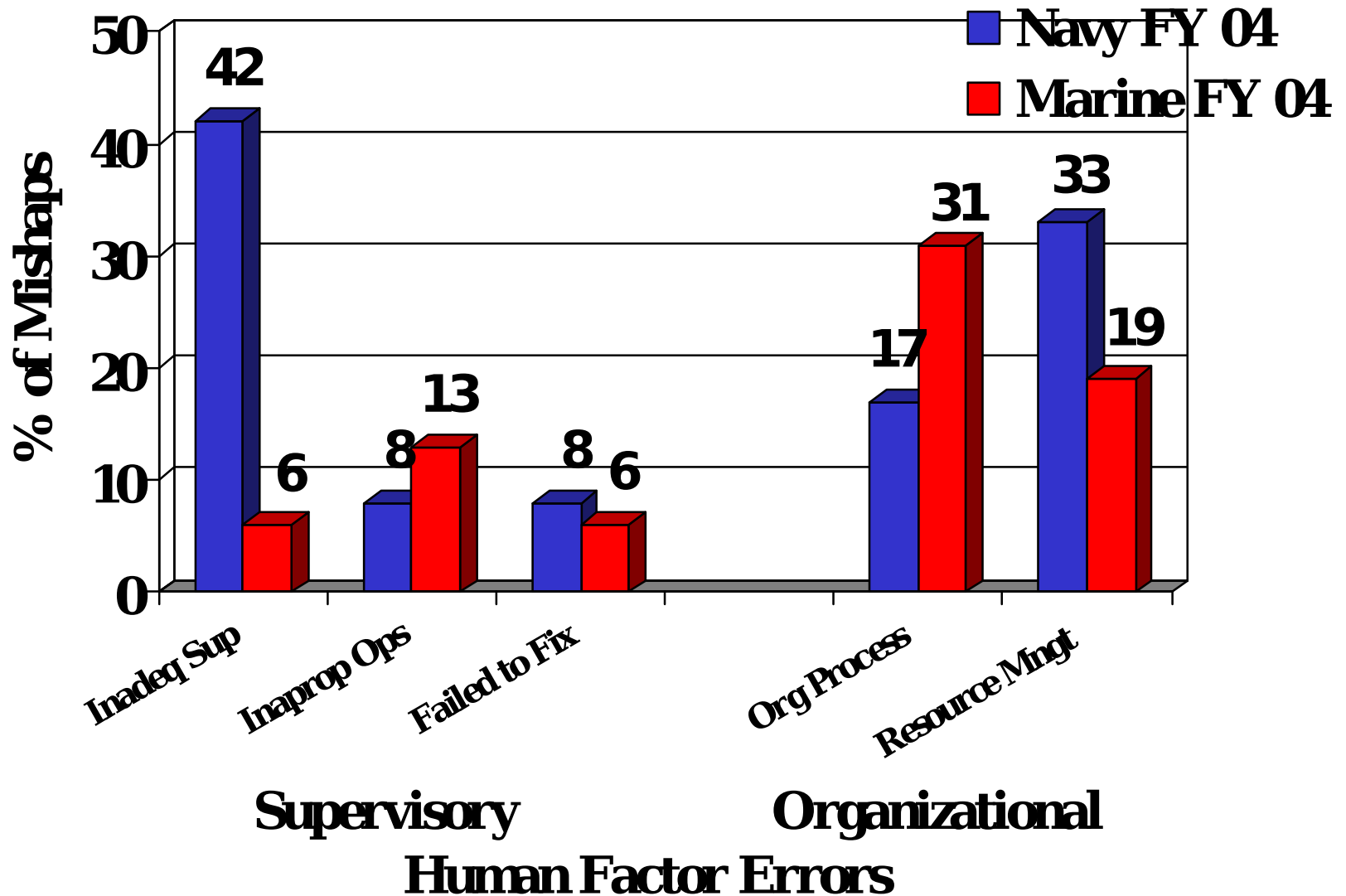


**Human Factor Errors (Preconditions - Aircrew)**



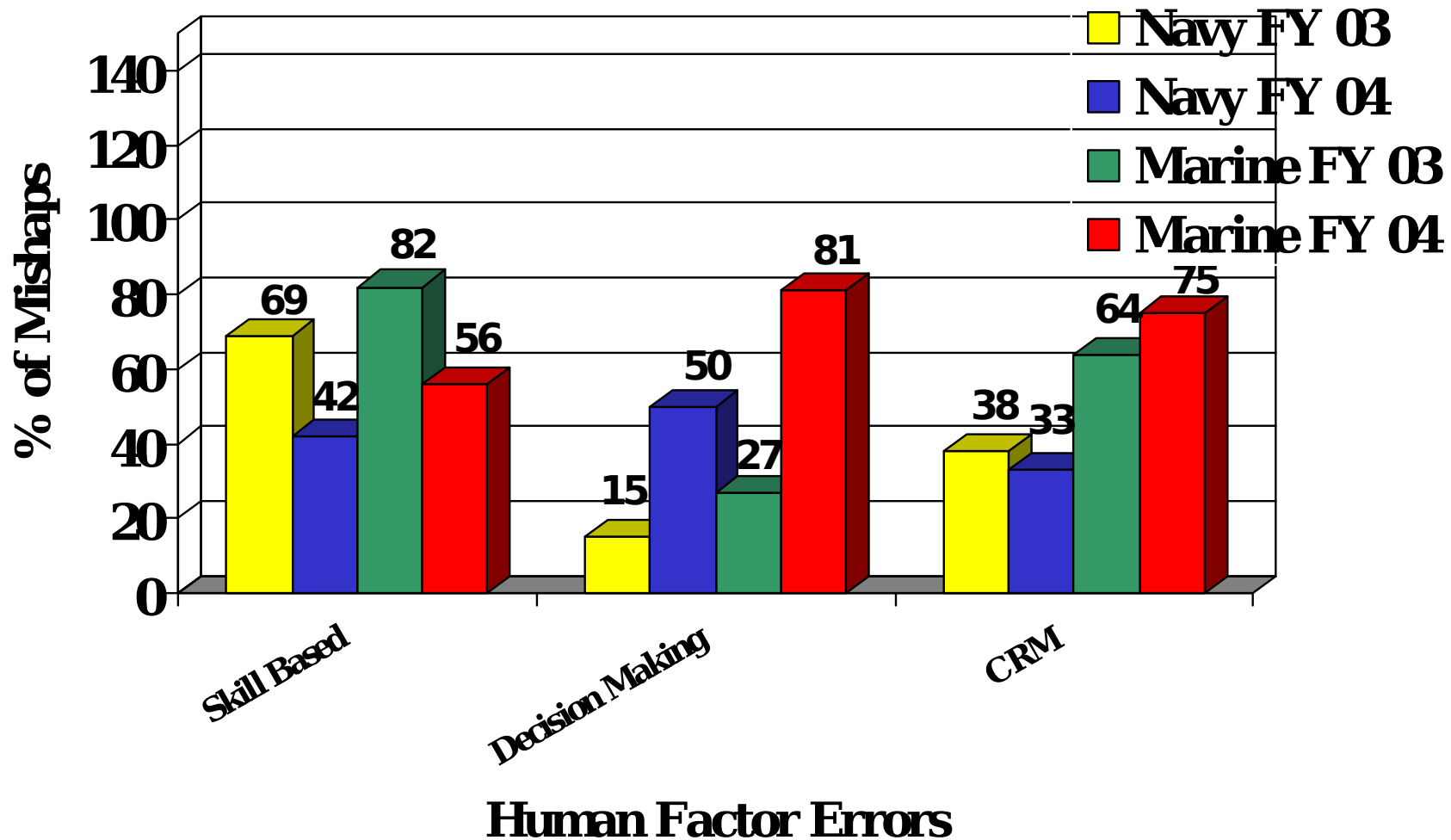
# ***Human Factor Errors (FY04)***

## ***Supervisory and Organization***





# ***Human Factor Errors FY 04 compared to FY 03***





# AVIATION

## TRENDS

### Investigations

- **Human error (aircrew): Leading causal factor**

- **Skill-based errors**

### Survivor CRM failures

- **Many violations**
- **No experience**
- **Training quality/quantity**
- **NATOPS/technical pubs**
- **Cannibalization**

## TAKEAWAYS

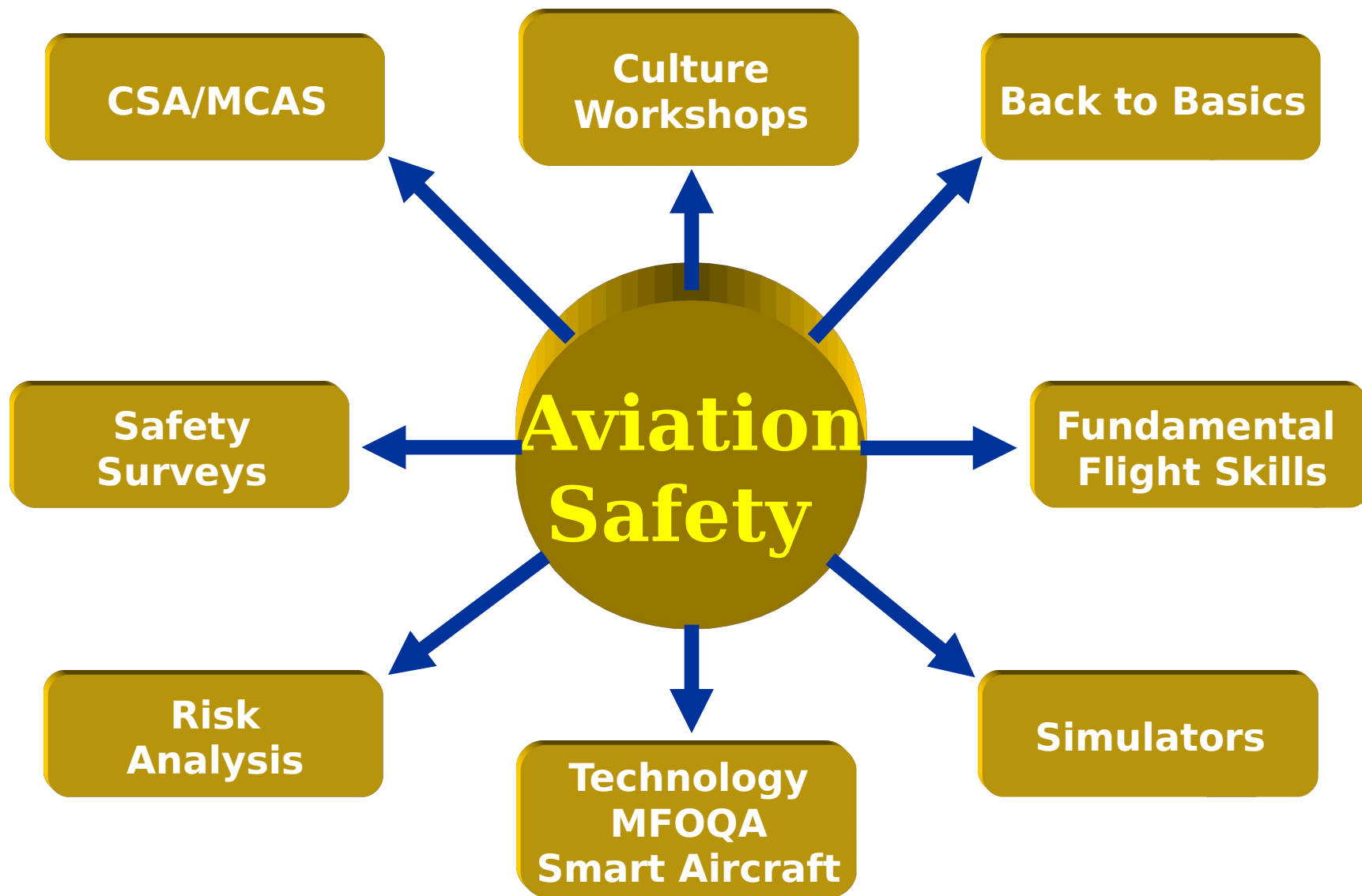
- **Fund state-of-art simulators and data centric systems**
- **Improve training**
- **Increase proficiency**
- **Institutionalize ORM**
- **Enforce standards**
- **Increase checks and balances**







# ***Aviation Intervention Strategies***





# ***Survey Takeaways FY 2003***

## **Safety Surveys on 90+ aviation co revealed:**

- Aviation HAZREP submissions↓
- NAMP Program Knowledge/Compliance
- High OPTEMPO (real vs perceived pressure)
- Manning vs Utilization
- Flight Surgeon availability



# **Command Safety Assessment / Maintenance Climate Assessment Surveys**

**580 CSA's (approx. 19,000 aircrew)**

CSA observations (aircrew)

- **44% inadequate resources**
- **62% commands over-committed**

**550 MCAS's (approx. 48,000  
maintainers)**

MCAS observations (maintenance personnel)

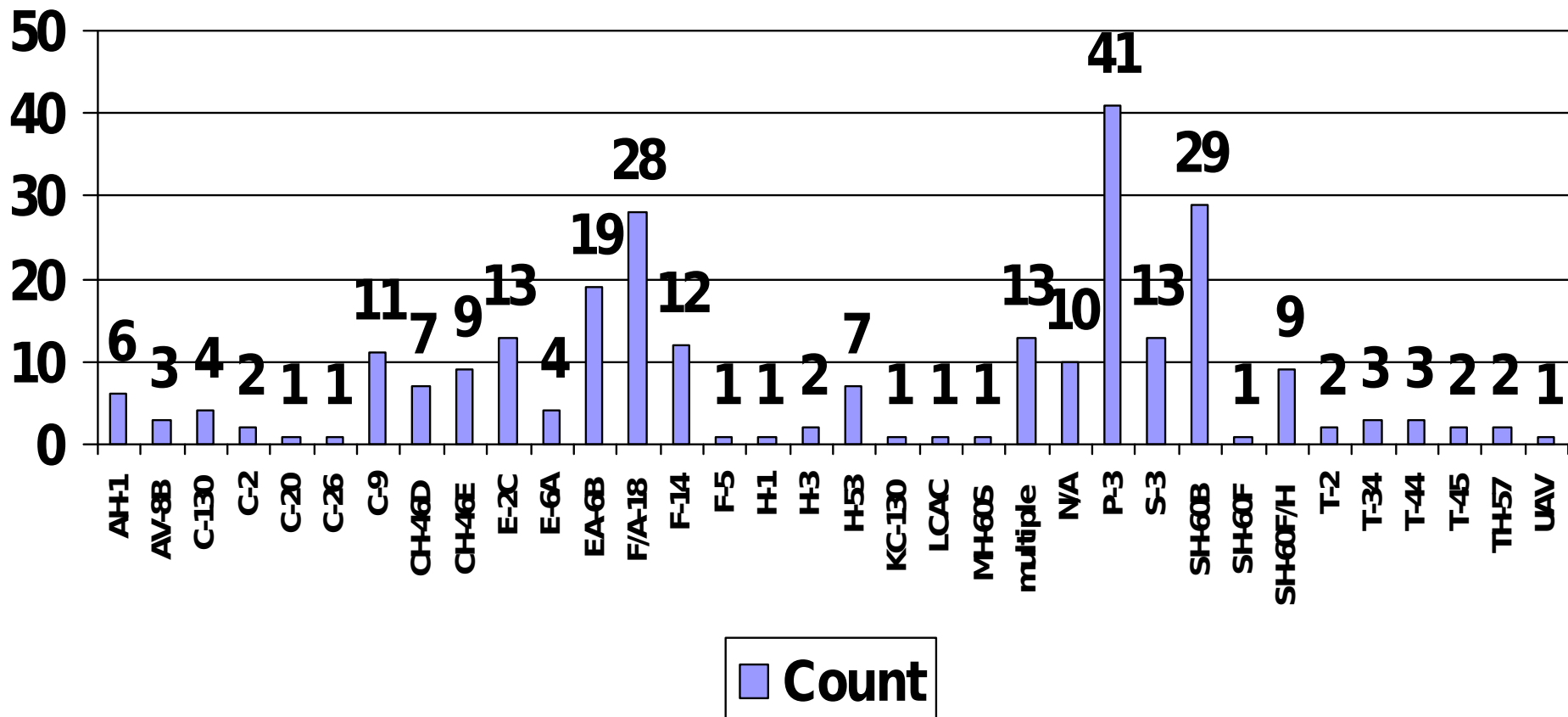
- **27% "cutting corners" not discouraged**
- **51% inadequate command safety recognition**
- **32% ineffective pass-down between shifts**
- **49% poor communication up / down chain of command**

▪ **55% commands over-committed**



# Culture Workshops

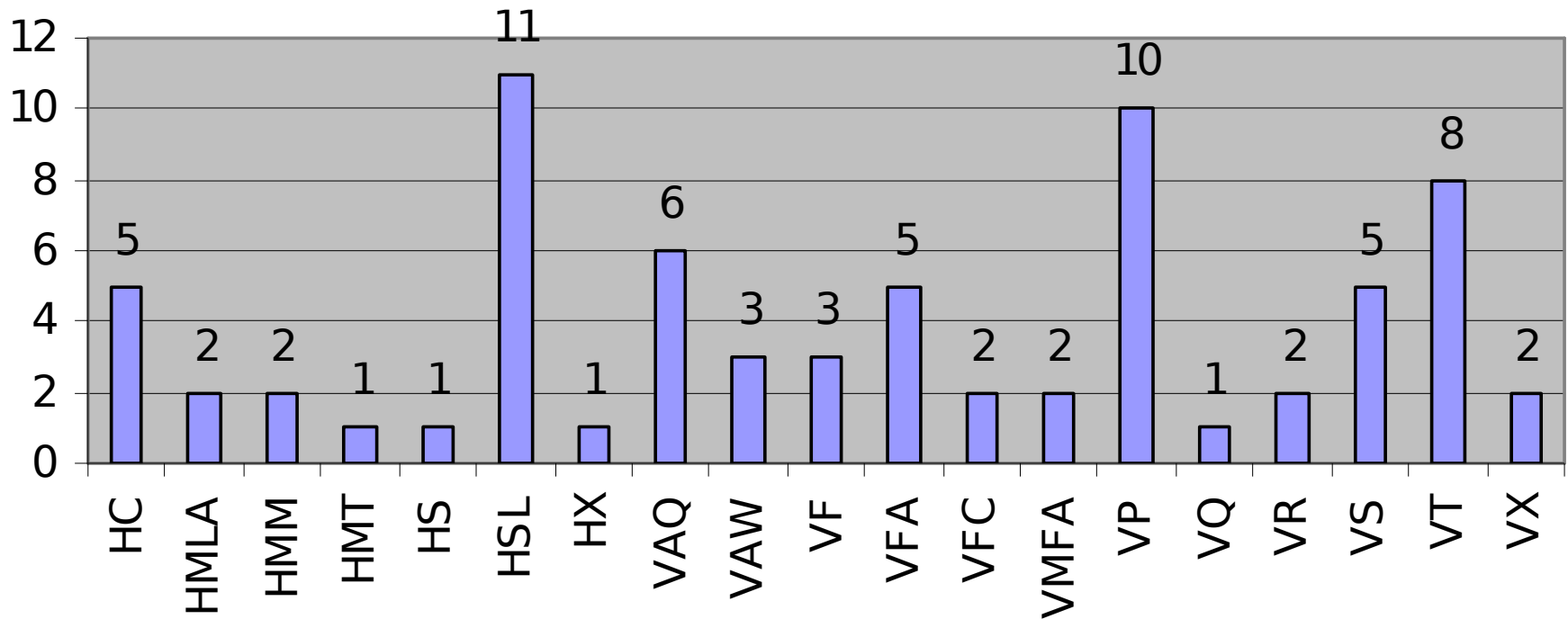
## Completed By Aircraft Type Since FY01





# Culture Workshops

## FY04 NUMBER OF WORKSHOPS BY COMMUNITY







# Today's Areas of Greatest Concern

## The Largest Challenge: Aviation - Traffic - Recreation!



FISCAL YEAR	COST	
	OVERAL L	AVIATIO N
FY00-04	\$4.6B	\$4.0B
FY02	\$683M	\$588M
FY03	\$1.029B	\$955M
FY04	\$1.365B	\$1.286B
FY05	\$171M	\$164M

(\$\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)

DEATHS								
OVERAL L	PMV				RECREATION			
	Air	Afloat	Shore	Air	Afloat	Shore		
	%			%				
1,071	582 54%	90	124	368	149 14%	29	35	85
238	140 59%	30	32	78	32 13%	9	5	18
232	119 51%	17	31	71	32 14%	9	6	17
	110	16	20	83	33	4	0	20

**65-77% of deaths are due to PMV & Recreation mishaps**  
**85-96% of resources lost are due to Aviation mishaps**

63%

12%

Updated  
24Jan05

27



# Commander's Assessment

## TOP CONCERNS

- Off-Duty (PMV, REC) the challenge
- 50% Mishap Reduction Campaign NOT consistently reaching deckplates
- Cultural change takes time

- **Status Quo Will Not Get the Job Done.** Good programs exist and have produced some good results, but...
- **Leadership and Accountability Required.** Most mishaps can be prevented with appropriate intrusive leadership and involvement at every level.
- **Cradle to Grave Training as Long-Term Fix.** 5 Vector Model being worked by Navy Center for Personal Development.
- **Safety Center & Navy-Marine Corps Focus.** Predictive and Preparative vice Reactive.
- **Utilize All Available Safety Resources.** Army Safety Management Information System, Traffic Safety Toolbox, Leave/Liberty Risk Assessments, etc.
- **Emphasize Safety and Risk Management "24x7."** A way of life. Not a concept that gets increased emphasis post-mishap.
- **Balanced Acquisition Approach.** Balanced acquisition approach for platforms and COTS/emergent technologies to reduce mishaps.
- **ORM is Getting There, But More to Do to Ingrain It On and Off-Duty.**
- **Bottom Line** **PLATFORM MISHAP REDUCTION - ACHIEVABLE. OFF-DUTY - HARD**



# PERSPECTIVE

"IN 1968, WE LOST 99 AMERICAN  
SAILORS IN USS SCORPION,  
WHICH WE THINK OF AS  
A NATIONAL DISASTER;  
WHILE WE LOST  
103 SAILORS AND MARINES  
IN PMV ACCIDENTS IN 1998,  
AND CALL IT OUR 'BEST YEAR'!"

ROBERT B. PIRIE

ACTING SECRETARY OF THE NAVY

20 JANUARY - 24 MAY 2001

There are no memorials  
to honor service members  
who died in car accidents.

## WHY DO WE ACCEPT MISHAPS?





# Status Check (PMV Fatalities)

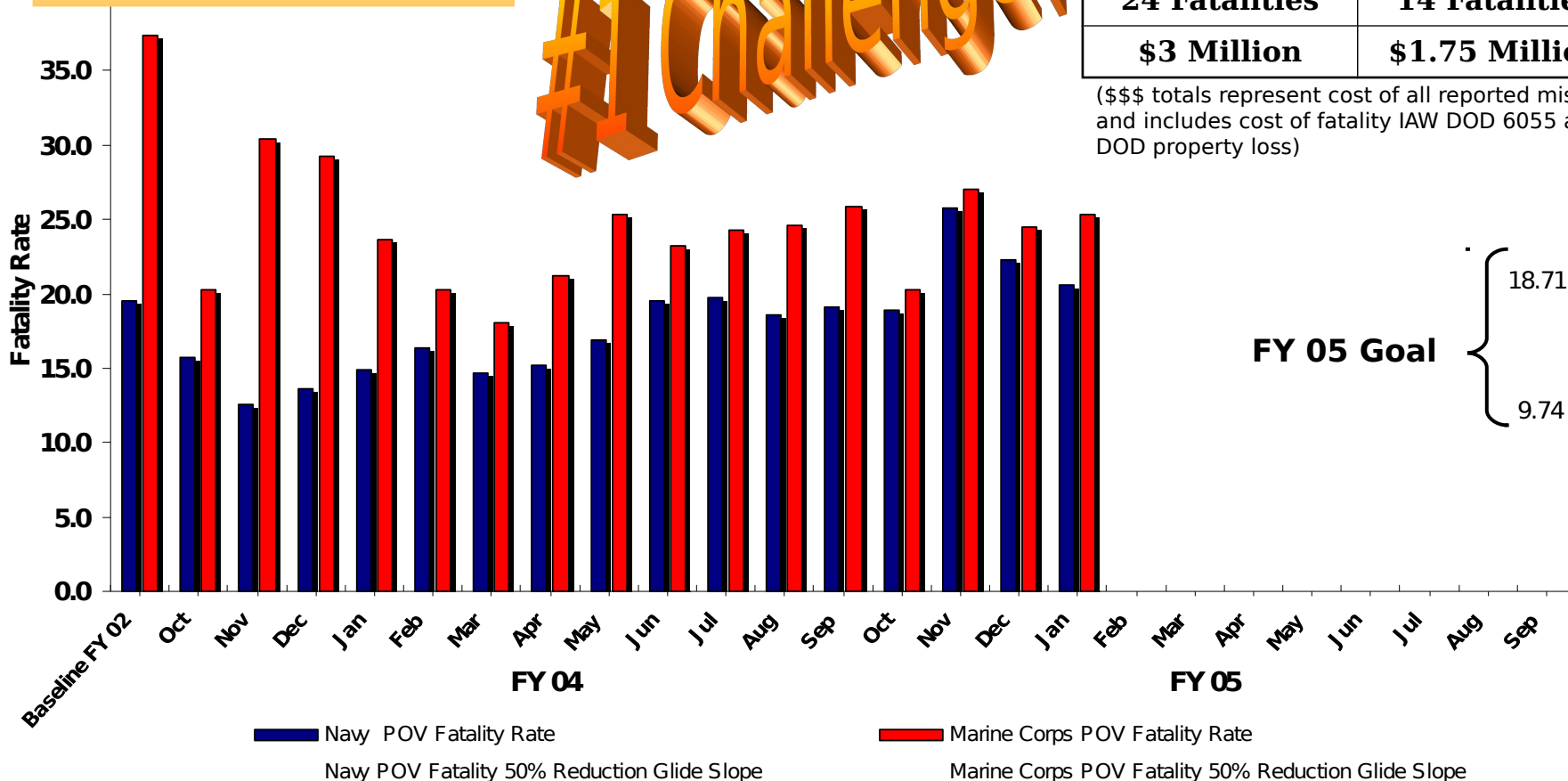
## Leading Causal Factors

- Nighttime Driving
- No Seat Belt Use
- Excessive Speed
- Alcohol
- Fatigue

#1 Challenge!

FY04 Losses	
USN	USMC
73 Fatalities	46 Fatalities
\$14 Million	\$11 Million
FY05 Losses	
USN	USMC
24 Fatalities	14 Fatalities
\$3 Million	\$1.75 Million

(\$\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)







# Factors in Traffic Deaths

USN/USMC, FY02-04

**FY02-04 Deaths:**

**378**

**FY05 Deaths:**

**38**

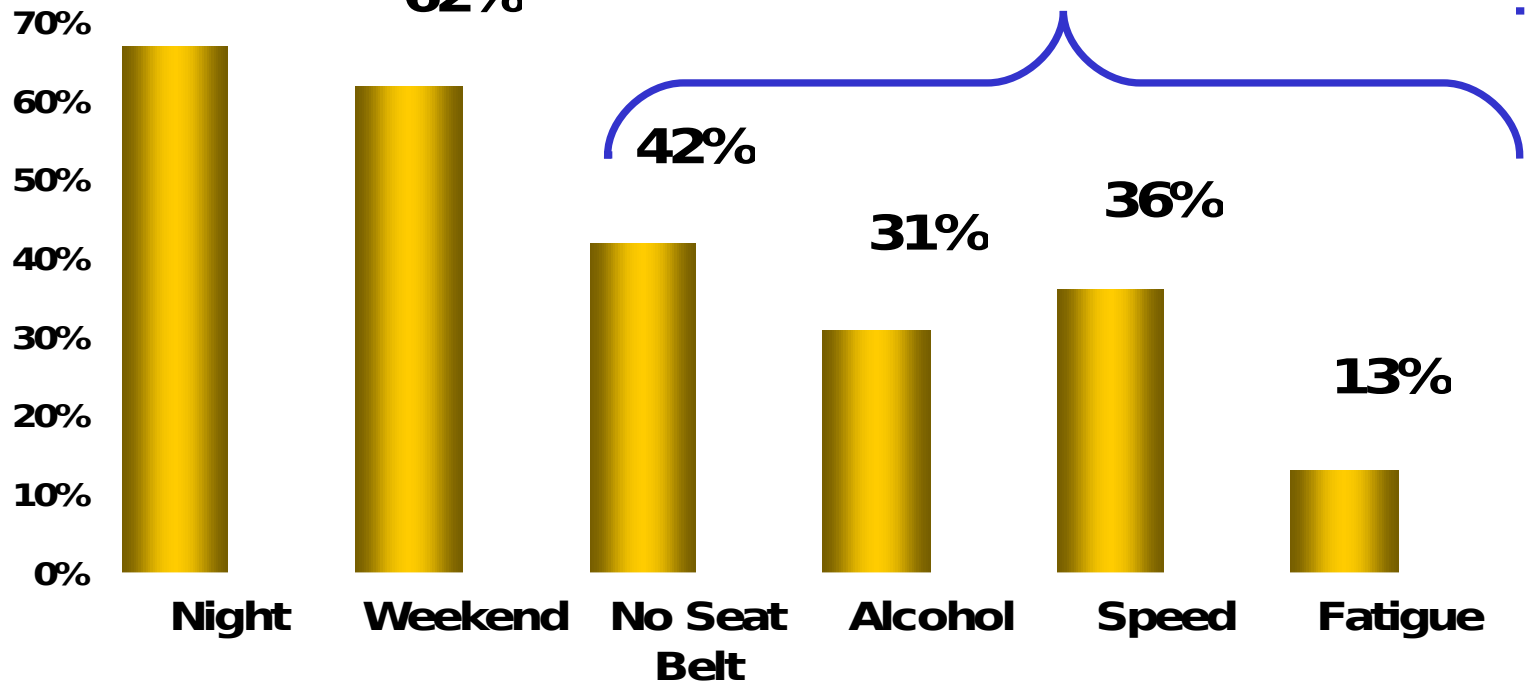
**FY02: 140 FY03: 119 FY04:**

**67%**

**119**

**62%**

*Where is the leadership?*





# ***Click It or Ticket...***

## ***Do your personnel buckle up???***

***Video Clip: "Heaven Can Wait"***



***Have your Sailors or Marines completed a required motorcycle safety course?***

***Video Clip: Motorcycle Mishap***



# ***Are they operating their motorcycles safely?***

***Video Clip: Motorcycle Mishap***





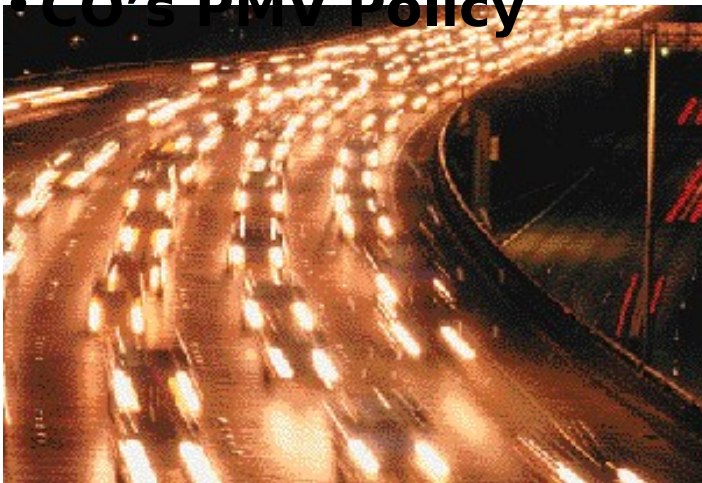
# ***Toolbox for Motor Vehicle Safety***

***([www.safetycenter.navy.mil/ashore/motorvehicle/downloads/toolbox.doc](http://www.safetycenter.navy.mil/ashore/motorvehicle/downloads/toolbox.doc))***

- **Leave Chit Statement**
- **PMV Status Board**
- **Designated Driver / CMD Transport**
- **Pre-Trip Checklist / Brief / Counseling**
- **Calling card for emergencies**
- **CO's PMV Policy**



- **PMV Safety Quiz**
- **Safety Standdowns / Seminars**
- **Pre - Holiday Briefs**
- **Newcomer orientation/Indoc**
- **Leave / Liberty request**
- **Crash Prevention Awards Program**





# ***Speeding vs. Physics!***

***Video Clip: Speeding***



***Awareness is critical at all times for your personnel...***

***Video Clip: Pedestrian Mishap***



# ***What steps can you take to help prevent fatigued drivers?***

***Video Clip: Fatigue-Related Mishap***

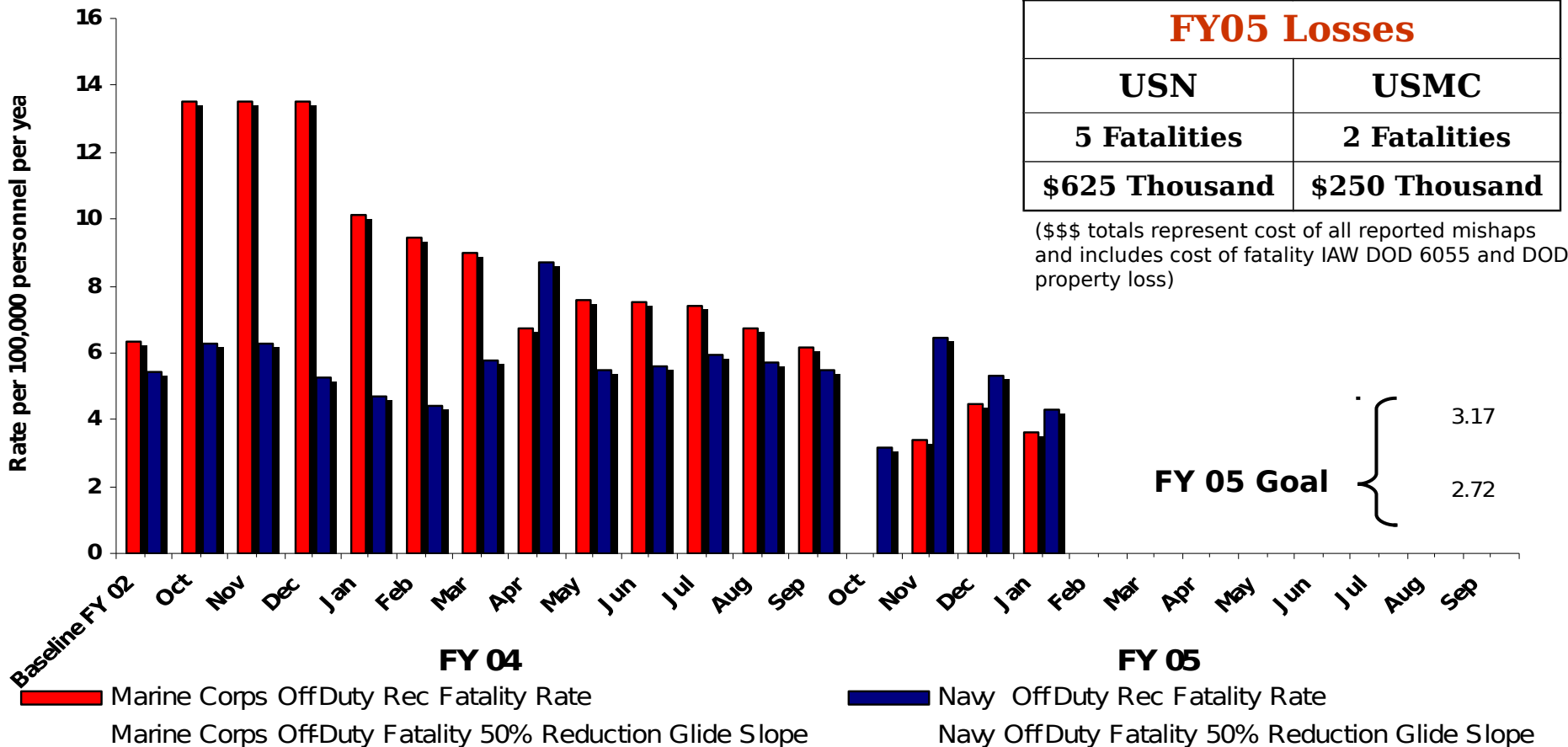


# Status Check

## (Recreation/Off-Duty Fatalities)

### Leading Causal Factors

- Inadequate training
- Failure to follow regulations
- Lack of experience at activity



### FY04 Losses

USN	USMC
22 Fatalities	11 Fatalities
\$8 Million	\$3 Million

### FY05 Losses

USN	USMC
5 Fatalities	2 Fatalities
\$625 Thousand	\$250 Thousand

(\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)



***Not a good day on the water...***

***Video Clip: Jet Ski Mishap***





# ***What do your Sailors or Marines do for fun?***

***Video Clip: Bicycle Mishap***



***Traffic and Off-Duty safety adherence is difficult to monitor but critical to overall success...***

***Video Clip: PMV Crash/Seatbelt***



# ORM and the Fleet

## COURSE S

## ORM (OPNAVINST 3500.39B)

- Instruction available on NSC website.
- Governs use of ORM throughout the Fleet
- "SHOULD" to "SHALL"

● **Curriculum.** CNET, NSC, and NAVOSHTRACEN courses incorporate ORM into curricula.

● **Training.** Aviation, Afloat, and Submarine survey teams provide ORM refresher training upon request. Aviation, Afloat, and Submarine safety officer schools provide instructor-level ORM training.

PCO/PCO/DH schools, DIVO training, and Senior Enlisted Academy provide training.

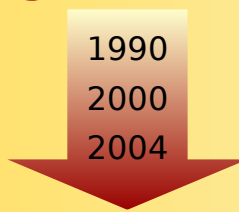
## ON-LINE

● **On-Line Training.** Offered through CNAF's ORM University and USMC MarineNet. Resources available on NSC website. Total Risk Assessment and Control System (TRACS) & U.S. Army Motor Vehicle Risk Assessment Tool (ASMIS).

## ORM Works!

Transition to RM a Must.  
**Need it On and Off-Duty!**

## MISHAP RATES

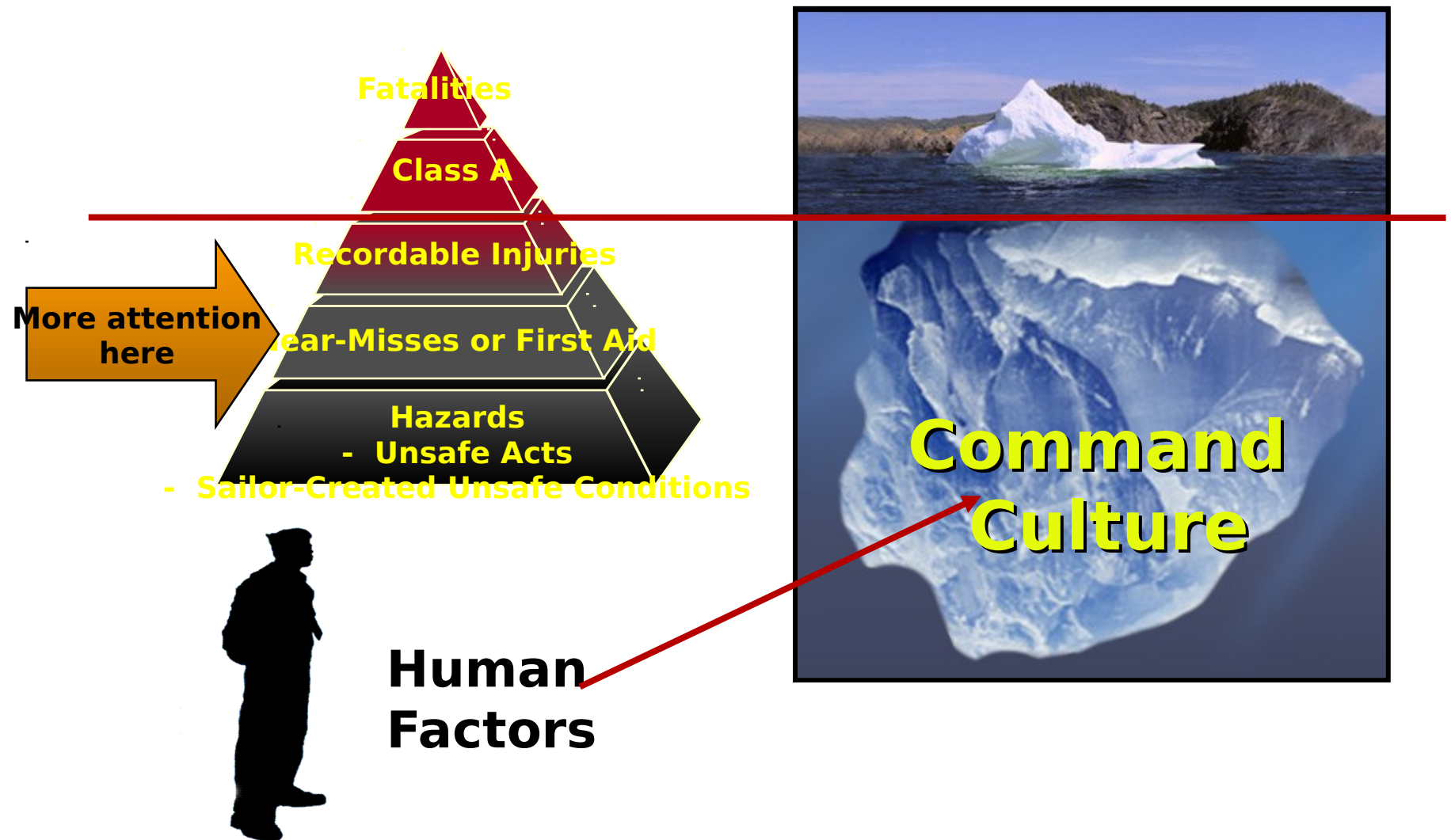


ORM Introduced to Fleet  
Aviation Mishap Rates Declining  
Afloat and Submarine Communities Show Improvements

Works- but is not institutionalized!



# *Leaders Focus on Culture*





# How To Get There - What is "Actionable"

LEADERSHIP → CO sets the climate

1. Ensure you have a consistent "Safety Structure"
2. Mentor - On and Off duty
  - 2<sup>nd</sup> MAW Mentoring Program / Revise leave chits to a "contract"
    - What are your Sailors/Marines doing after hours?
    - The "leadership hungry" PO3
  - Look for the signs "Below the Waterline!"
3. ORM → RM
  - Take it off-duty (**ORM is not "THERE" yet**)
4. Awareness - Can we improve if Sailors don't know about Mishap Reduction Campaign???
5. Accountability - A Command with no PMV program?
6. Reporting - HAZREPS? Class B, C, ....

**A Class "A" is a Class "A" is a Class "A" .....**

**- Does a Parent "care" how their Son or Daughter died?**



# ***Are We Serious About Safety?***

- Commander Accountability
  - Class A Flight Mishap vs. Class A PMV
    - Weak NATOPS program; No involvement; Bad climate
    - No PMV program; No mentorship; Bad climate
  - On and Off-Duty Responsibility
  - Proactive vs. Reactive
- Was it preventable?
- Human factors
- Command Safety “Structure”

***Safety “Climate” vs. Safety  
“Nazi”***





# ***We're Serious About Parts of Safety***

## THE BUILDING BLOCKS OF SAFETY



## **DESIRED END STATE**

***Every Sailor possesses an ever-present and intuitive safety awareness that he or she carries at all times - at sea, on deployment, at work, at home, on liberty and leave.***



# ***If I were CO, I would do these 6 things to improve***

## ***Safety...***

- **VISIT THE NAVAL SAFETY CENTER WEBSITE - THE TOOLS ARE THERE!**
- **SCHEDULE A BASELINE SAFETY SURVEY, CULTURE WORKSHOP, AND/OR AN ONLINE SCAS/CSA/MCAS SURVEY AS APPROPRIATE FOR COMMAND.**
- **ENSURE THE COMMAND HAS A SOLID WELCOME ABOARD/SPONSORSHIP PROGRAM AND MENTORSHIP PROGRAM. (ON- AND OFF-DUTY)**
- **IDENTIFY KNOWN HIGH RISK PERSONNEL WITHIN COMMAND.**
  - **ONE ON ONE AWARENESS TRAINING AND MENTORING (WHO RIDES A MOTORCYCLE?)**
  - **ESTABLISH STATE SIDE LIBERTY RISK PROGRAM.**
  - **SHOW PERSONNEL THE COLD HARD OUTCOME OF FAILING TO FOLLOW THE RULES AND EXERCISE SAFETY.**
  - **PAGE 13 ENTRIES ENTERED INTO RECORD UPON COMPLETION OF EACH TRAINING SESSION.**
- **MAINTAIN HIGH VISIBILITY WITHIN COMMAND.**
- **HOLD PERSONNEL ACCOUNTABLE FOR FAILURE TO FOLLOW REGULATIONS.**



# ***Is It Possible?***

- **“Platform” Type Mishaps - YES!**
- **“Off-Duty” Mishaps - HARD.**
  - ***Can be done - but CHANGE a MUST!***
- ***Human Error - The “KEYS” of the realm***



# What We Can Do for You

## Naval Safety Center



Providing aviation, afloat, and shore support  
to Navy and Marine Corps commands



**NSC at your service... for free!**

Let our experience, expertise and unrivaled  
commitment to safety work for you.

**Mishap Investigations**

**Surveys**

**Assist Visits**

**Data Analysis**

**Workshops**

**Publications**

**Website**

**Presentations**

**Exhibits**

Call 757-444-3520 (DSN 564) or visit our website: [www.safetycenter.navy.mil](http://www.safetycenter.navy.mil)

## ON THE ROAD

- Culture workshops
- Unit surveys
- ORM unit training
- Mishap investigations
- USMC MTT seminars
- PCO briefings
- NAVOSHENVTRACEN Safety & Occupational Health Training

## AWARENESS

- Fleet Analysis
- Magazines printed/distributed (473,000 copies)
- Interactive CD's
- Acquisition process in-roads
- Safety advisories
- Customer information requests (3,600+ database queries per month)
- Safety Center web page





***Questions?***

